

APPLICATION  
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TITLE: PORTABLE LED UNIT INTERFACE AND POWER  
SUPPLY

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## PORTABLE LED UNIT INTERFACE AND POWER SUPPLY

## Background

[0001] Certain lighting units, such as the C-12 light emitting diode (LED) fixture available from Color Kinetics, use special kinds of power supplies with integral logic boards, that are intended for permanent installation. This allows the unit to operate as a permanently installed fixture.

[0002] A block diagram of a specific power supply is shown in Figure 1. The power supply 100 receives both AC power 105, and industry standard DMX control signals 110. The DMX control signals may be as described in the DMX 512 standard, in which many time division multiplexed signals are sent on a single line. The enclosure is designed for permanent installation, and hence includes no connectors, but rather only intends for permanent wire connections.

## Summary

[0003] The present system teaches a special portable power supply and logic control device intended for use with lighting devices of a type which are normally intended to be permanently installed in a location. This power supply

is intended for use in temporary installations, such as would be used when a light intended for permanent installation is used in a rental situation.

[0004] The device includes a housing with a first set of connectors to at least one logic board, a power supply which supports operation of multiple units and connectors for the power supply.

#### Brief description of the drawings

[0005] These and other aspects will now be described in detail, with reference to the accompanying drawings, wherein:

[0006] Figure 1 shows a block diagram of a permanently installed power supply device;

[0007] Figure 2 shows a portable device described according to the present system;

[0008] Figures 3 and 4 show connector pins and their pin outs; and

[0009] Figures 5 and 6 show diagrams of the walls with connectors.

#### Detailed description

[0010] A block diagram of the portable interface device disclosed herein is shown in Figure 2. Figure 2 shows a

portable housing 205, including a number of connector portions thereon. A first connector wall 206 includes signal connectors 210, 215. The signal connectors are daisy-chained, industry standard, 5-pin XLR connectors. The first male connector 210 is a daisy-chained to a second female connector 215. The daisy-chain allows connecting multiple units 200 to be connected together, from a single DMX logic line. An AC power connector assembly 220 includes AC power and a circuit breaker 221. The input AC power is connected to a power supply, producing power outputs.

[0011] A first logic board 242 receives the DMX signal 212 from the connector 210. In this embodiment, the logic board 242 can simply be the exact logic board taken from the power supply circuit 100. Alternatively, logic board 242 can be any logic board which responds to multiplexed signals of any type, and produces specific outputs intended for specific units. For example, the logic board 242 may include a processor that analyzes the DMX signal, and recognizes a signal output for LED light number one, shown as 261 in Figure 2. This disclosure also encompasses other kinds of logic processing of the signal. The signal within the DMX stream intended for LED number one is separated by the logic board 242 as signal 261.

[0012] A second connector wall 226 includes 12 connectors, shown generically as 230. Each of the connectors 230 is a 4-pin female connector of the XLR type carrying logic information and power. Note that the input signal connector 210 is a 5-pin connector, while the output signal connector 230 are 4-pin connectors. The power from power supply 225, and the separated logic signal 261 are coupled to each output connector 230.

[0013] The DMX signal 212 is also daisy-chained through the logic board as signal line 213, to a second logic board 243. The second logic board may be logically identical to the first logic board. In addition, the signal is daisy-chained out through signal line 214, and sent out on a daisy-chained output signal connector 215. The signal 215 can be connected to other power supplies using the same DMX signal stream.

[0014] The unit therefore separates the walls into a first connector wall 206 for signal in/out, and a second connector wall 226, for signal to lamps power outs.

[0015] Power supply 225 may be a 600 W power supply, which supplies power to power the logic boards 242, 243, and also supplies the power to each of the connectors 230 to control the lights themselves. More generally, the power supply

225 needs to have sufficient capability to power all the connectors 230.

[0016] The pin out of the 5-pin connectors 210, 215 are shown in Figure 3. Connectors include a data plus connection, a data minus connection, and a ground connection as shown. Two pins are unused. Figure 4 shows the output connectors 230. These are 4-pin connectors which include a data signal, ground and power. The output voltage 252 of the 600 W power supply is 24 volts DC, to match many standard lighting units. For example, this device may be used not only with Color Kinetics' devices. The pin-out arrangement is selected such that if the unit is plugged into other mating connectors, such as those on Wybron or Morpheus units, or visa versa no damage is caused.

[0017] Figure 5 shows a perspective view of the front of the unit 220 showing the output connector wall 226. All of the output connectors are together on the same wall, along with an on/off switch.

[0018] The power and DMX input and output connectors shown in Figure 6 on the opposite wall. This separates the connectors intended for the lamps, on a different wall from those connectors intended for input power and control.

Figure 6 shows the open case, illustrating the power supply underneath the logic connections.

[0019] Although only a few embodiments have been disclosed in detail above, other modifications are possible. All such modifications are intended to be encompassed within the following claims.